

### **Remarks**

Applicants herein withdraw Claims 9-15 from consideration and reserve the right to file continuing applications directed thereto.

### **Claim Objections**

Claims 2 and 3 stand objected due to an informality. Applicants have inserted the "%" symbol after the "95" in Claims 2 and 3 as requested. Applicants herein request withdrawal of the pending objection.

### **Claim Rejection**

Claims 1-8 stand rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 103(a) as obvious over Gabor (WO 02/16352). Applicants respectfully traverse these grounds of rejection.

Applicants submit to anticipate a claim; the cited references must teach each and every element of the claimed invention, either explicitly or inherently. Applicants further submit "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (Fed. Cir. 1974)". Applicants also respectfully submit that "in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claims limitations. The teachings or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants' disclosure." See MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ 2d. 1438 (Fed. Cir. 1991).

Applicants submit the present invention is directed a process for the production of a  
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polymer(s) having a Mooney viscosity of at least 25 Mooney-units and a gel content of less than 15 wt.% comprising repeating units derived from at least one isoolefin monomer, more than 4.1 mol% of repeating units derived from at least one multiolefin monomer comprising mixing at least isoolefin monomers, at least one multiolefin monomer and optionally further copolymerizable monomers in the presence of  $\text{AlCl}_3$  and at least one proton source and/or cationogen capable of initiating the polymerization process and at least one multiolefin cross-linking agent, wherein the process is conducted in the absence of transition metal compounds and organic nitro compounds, wherein the process is continuous, and wherein the conversion level of the polymer is between 50% and 95%.

Applicants submit Gabor fails to teach a polymer having more than 4.1 mol% of repeating units derived from at least one multiolefin monomer according to the process as claimed. Further, as noted in the Office Action, Gabor fails to teach a polymer having the presently claimed gel content. Accordingly, Applicants submit Gabor fails to anticipate the claims.

The Office Action further states that Example 5 of Gabor shows a continuous process which meets all the process limitations of the claims and produces butyl polymers having the requisite Mooney units. Applicants submit Example 5 of the present invention is not comparable to the present invention. The monomer feed in the continuous process of Example 5 is 0.8 wt%, which is not comparable to the 2.55 and 4.4 wt% isoprene content in Examples 1 and 2 of the present invention. Applicants submit that at least due to the fact that the multiolefin monomer feeds of the Examples are so different, it is not appropriate to then compare the Mooney viscosity of Example 5 with the present invention.

Furthermore, Applicants submit it would be impossible to obtain a final polymer with at least 4.1 mol% of isoprene from a feed composition of only 0.8 wt% isoprene due to the conversion of the polymer during the process. Applicants accordingly submit there is

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no reasonable expectation to produce a polymer by the claimed process which has a multiolefin content of at least 4.1 mol% and a Mooney viscosity of at least 25 Mooney units.

Further, Applicants submit Gabor clearly teaches a process which requires four distinct components, namely a monoolefin monomer, a multiolefin monomer, a crosslinking agent and a chain transfer agent. As noted in the teachings of Gabor at page 9, beginning at line 25, it was surprisingly discovered that butyl rubber may have the improved disclosed properties by adding to the monomer mixture a crosslinking agent and a chain transfer agent. The requirements of the chain transfer agent are further stressed at page 10 beginning at line 25, where it is further disclosed that the careful balancing of the crosslinking and chain transfer reactions is required. Applicants submit the process disclosed by Gabor and illustrated in Example 5 requires low amounts of isoprene, the presence of DVB to crosslink and the presence of a chain transfer. Applicants submit one skilled in the art would understand crosslinking agents (such as DVB) introduce long-chain branches onto the main polymer backbone as well as introduce chemical crosslinks throughout the polymer matrix. Chain transfer agents act in an opposite manner. Chain transfer agents, such as TMP, cut short the polymer chains by interrupting chain propagation and initiating a new polymer chain.

Applicants therefore submit the teachings of Gabor are very specific to a system which contains:

- (a) isobutylene: main monomer, responsible for many of butyl's physical and dynamic properties,
- (b) isoprene: used to introduce functionality along the polymer main chain,
- (c) DVB: crosslinking agent, increases Mw, introduces long chain branching and chemical crosslinks, and
- (d) TMP-1: chain transfer agent, reduces polymer molecular weight while not affecting ultimate conversion.

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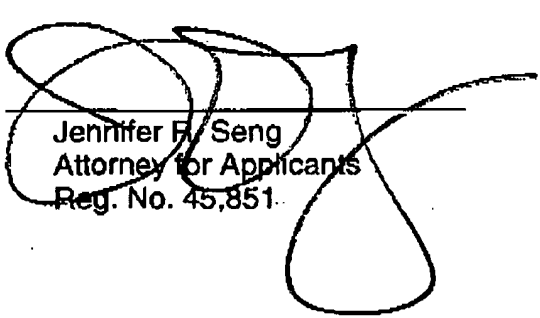
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Applicants submit there is no motivation in Gabor to modify that process based on the discussion and Example 5 to increase the multiolefin monomer feed, to illuminate the chain transfer agent and increase the Mooney as claimed. Applicants further submit if the teachings of Gabor were imposed in the present process (i.e. TMP-1 in addition to the elevated levels of isoprene in the present invention + DVB) the balance of properties of the present invention would be lost because adding the TMP would decrease the Mooney. This is in direct contradiction with the present claims. Applicants submit only the present invention provides motivation for a process as claimed.

Applicants submit, at least in part, based on the comments above, Gabor fails to anticipate the present invention or render the present invention obvious. Accordingly, Applicants request withdrawal of this ground of rejection and early allowance of the pending claims.

Respectfully submitted,

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